CRWG '99
Intel Working Group

CDR "Doc" Sweitzer
CNO N20
&
CDR Frank Murphy
CNO N62

Agenda

- Session 1
  - GALE Lite Demo
  - GALE Lite implementation plan
  - Relationship with CUB discussion
  - Relationship with AA/I^3

GALE Lite - GCCS-M Interface

2 Nov 99

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Present USN ELINT Missions

- Strike planning
  - Require current tactically maintained EOB
    - Precise emitter locations
    - Detect changes in observed operating patterns
    - Emitter operating modes
- Maritime
  - Tracking cooperative targets (merchant focus)
  - Maintain ELINT signature of friendly and neutral ships for combat ID

Today's OPS

- GCCS-M does not handle current and future IBS data rate
  - PENS filtered, etc
- Fleet solution: Use GALE Lite
- Lack of GCCS-M interface hampers usability
  - Must have all high interest data in COP
  - Current Fleet CONOPS is manual input of GALE Lite data

(Recent) History

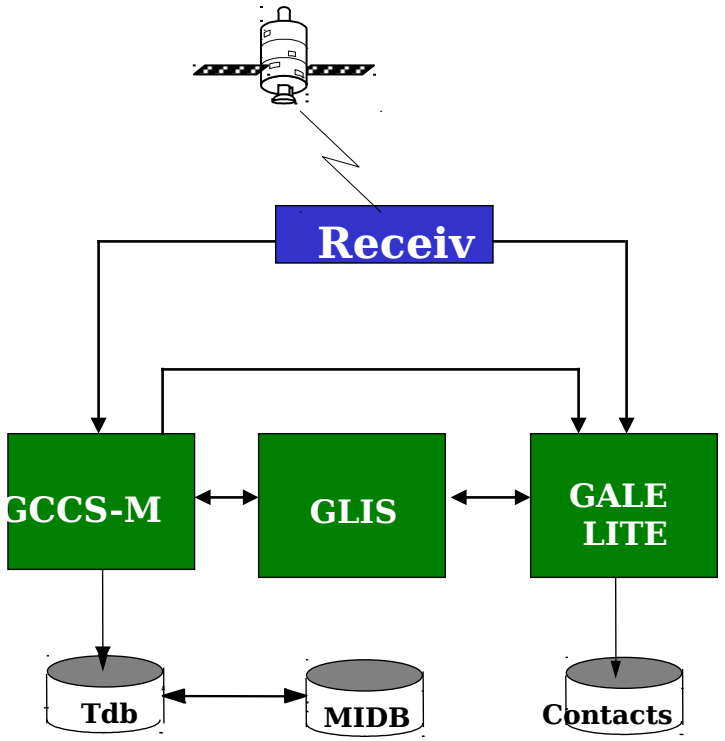
- 1996 USN Copernicus Requirement Working Group defined a requirement for data sharing between GALE Lite and GCCS-M in Navy Command Ships
- 1997 GALE Lite interface deployed on NIMITZ and PELELIU
  - Message interface between GALE buckets and GCCS M Intel Database
- 1998 Transfer of GALE Lite screen shots to GCCS-M PCs

GALE Lite Integration Objectives

- Package GALE Lite as DII COE compliant segment on HP platform
  - Exploit unique GALE functions within the GCCS-M
- Provide two way interface to exchange track data from GALE and GCCS M
- Create interface segment (GLIS) to
  - Accept data from GALE Lite
  - Ensure coordination with GCCS-M

GALE Lite - GCCS-M Architecture

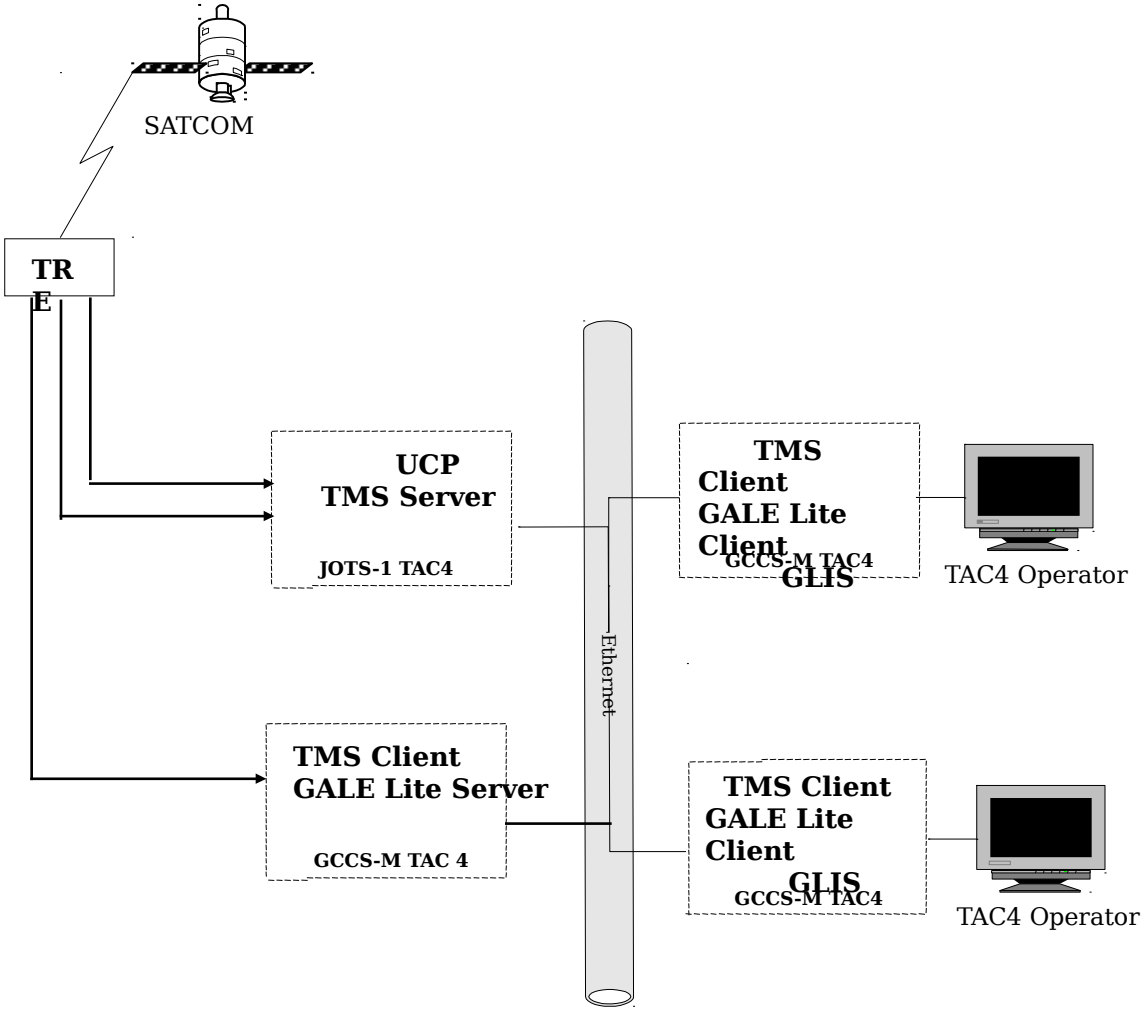
- All segments on currently deployed GCCS-M baseline
- GALE Lite has its own comms inputs
- GALE LITE Interface segment sized for 20K track objects



Functional Allocation

- GCCS-M Provides Multi-Source Common Operational Picture
  - GCCS-M receives multi-source data (OTCIXS, TADIXS, TADILS, etc)
  - Provides the user interface and display
- GALE Provides historical SIGINT database/ analysis tools
- GLIS Provides interface between GCCS-M and GALE

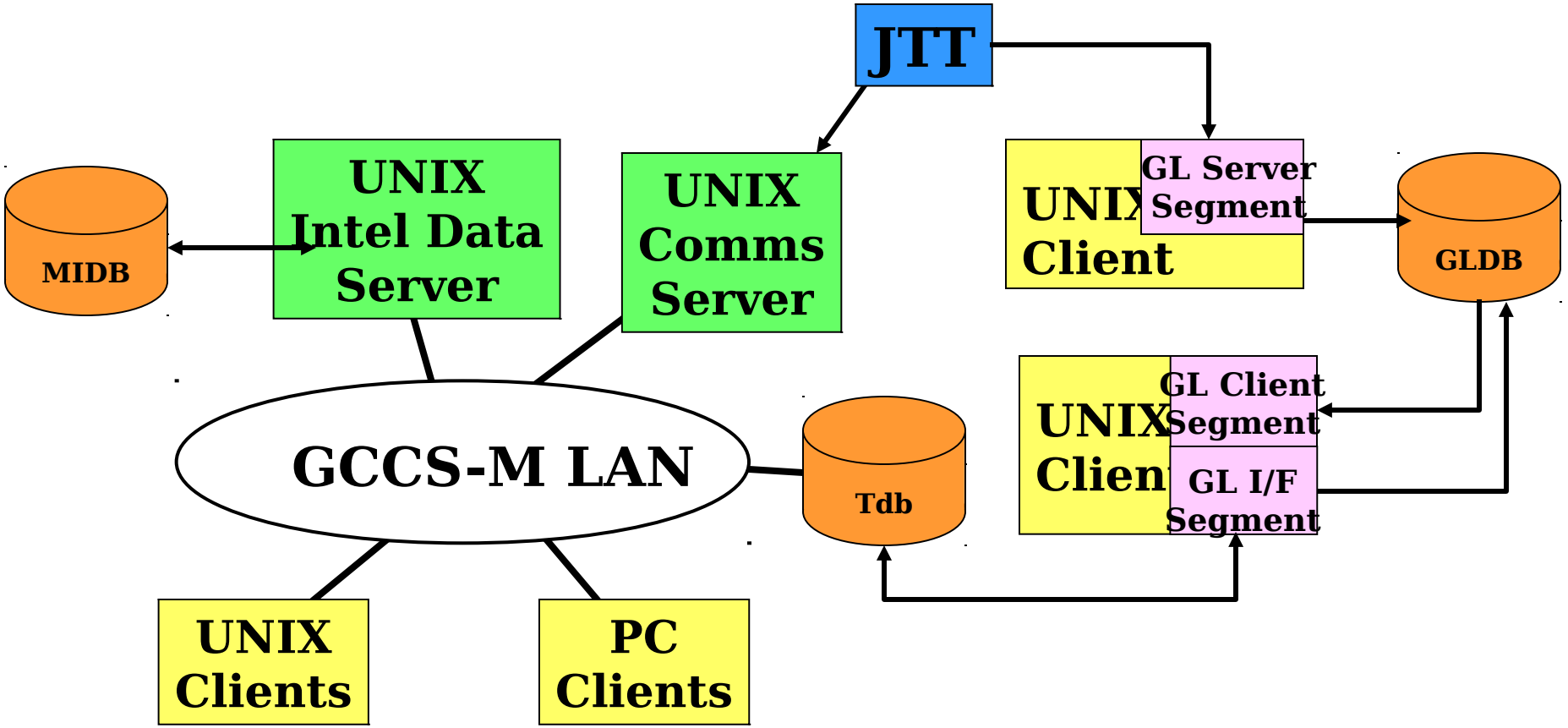
Shipboard Configuration



Demo Sequence

- **1- Showing the filtered GCCS-M tracks Environment**
  - System window with maps and COP
- **2- Show the raw data using GALE-Lite**
  - Show GALE-Lite Map window.
- 3- Show transfer of data from GALE-Lite to GCCS-M
- 4- Show transfer of data from GCCS-M to GALE-Lite

CCS-M GALE Lite Segments Architecture



Databases

Tactical Track Database (Tdb)

Modernized Intelligence Database (MIDB)

GALE Lite long term contact database (GLDB)

GALE Lite Integration

- Background:
  - Current capability is a standalone--not integrated
  - Rely on OSO for installation, training and LCM support
- Goals:
  - Integrate functionality into GCCS-M
  - Remove standalones from Fleet
  - Provide I&W, Situation Awareness and Long-term analysis support to EOB processing afloat
- Issue:
  - OSO Role once GALE Lite integrated into GCCS-M

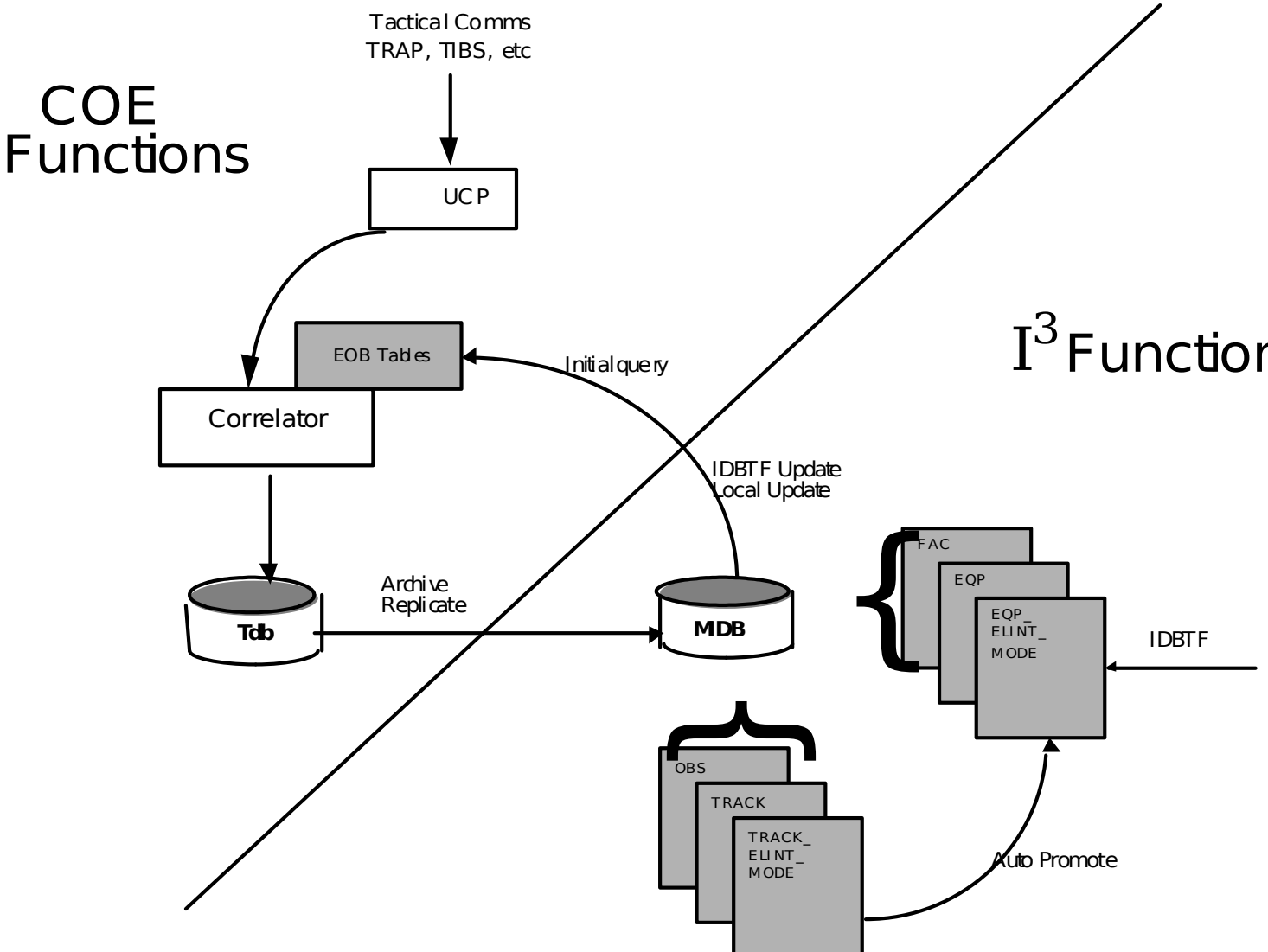
GALE Lite Integration

- FY00 Milestones:
  - Migrate current segments to DII COE 4.X baseline
  - Functional integration testing at SPAWAR (Nov/Dec 99)
  - Operator test at NSGA Norfolk (Jan - Feb 00)
  - CONOPS Development (Oct 99--Sep 00)
  - Operational Assessment / ORT in FBE-G (Apr 00)
  - Develop training and support documentation (Sep 00)
  - Selected GCCS-M fielding (Jul - Dec 00)
  - Establish tech support / hotline (Jul 00)
  - Incorporate as part of SCI Training initiative (Jan - Sep 00)

GALE Lite Integration

- FY 01 Objectives
  - Continue development to DII COE 4.x baseline
  - Incorporate training with CNSG at Corry (Oct 00 - Sep 01)
  - Integrate into GCCS-M DT / OT sked (Oct 00-Sep 01)
  - Train at schoolhouses (TBD)
  - Commence operational fielding (early FY02)
    - MTTs/tech support available
    - Remove standalones

Automatic Association



Issue: Relationship between GL/GLIS and AA

- Both apps developed IRT CRWG requirements
- AA replicates CIS AA functionality in DII COE
- Provides near real time Automatic Association of ELINT hits to EOB/MOB
  - Integrated TEOB process
  - Uses COP engine and I3 tools
- AA for near real time intel analysis and COP support
- GL/GLIS for off-line/term analysis
- SPAWAR will develop integrated conops thru Intel OAG and OSO tasking
  - Database management
  - Manning/workflow

GL/GLIS Cryptologic Roles

- CONOPS development
  - OSO and OAG
- Training
  - Corry
  - Afloat
- CUB library
- CVIC/SUPPLOT/SSES integration
- Your concerns

Top Issues / Action Items May 99 N6 Conference

- **Action: FLTCINC's to provide input to CNO N62 on PC and drop requirements by ship class to include USMC via message.**
  - **POC: CLF N6 / CPF N6**
- **Action: Release authorized product list, separate list for Classified and Unclassified LAN, each showing software in three categories: Required, Approved, Evaluated & Disapproved; Publish the revised process (including GOTS & sailor created software) = PPL**
  - **POC: SPAWAR 05 (PD 15 NT board)**

Top Issues / Action Items CRWG 98

- Hardcopy Warrior Support
  - Background: Increasing rqmt for h/c printing capab for MC&G, imagery, tgtg data products; Fleet is requesting RRS-like capab (rqmt 1048) on force-lvl ships and DPL on lg deck amphibs (rqmt 1076)
  - Action Item #1: SPAWAR take lead to coordinate w/FLT and approp resource sponsors (N8/096/N2/N8) to develop potential solutions/options. Suspense: 30 Sep 98

Top Issues / Action Items CRWG 98

- C4I SPECAT Architecture
  - Action Item #1: N62 take lead & work with PMW 171 to develop options. Present to Fleet, NSWPC, and NWPS IPTs.

    Suspense: 1 Oct 98

Top Issues / Action Items CRWG 98

- Updating, Synch, & Sharing of Intel DBs
  - Action Item #1: PMW 171/SSC develop smooth IDBTF and Replication processes and N62 provide info to fleet via msg.

    Suspense: 30 Sep 98/31 Dec 98
  - Action Item #2: PMW 171 COP and Intel teams develop interoperability plan/capab/process btwn TDBM and MIDB.

    Suspense: FY 99

Top Issues / Action Items CRWG 98

- Data Population and Standards
  - Background: NITF 2.0 metadata inconsistently/inadequately populated by nat'l production community; BE/Osuffix; no cml CORBA standard yet.
  - Action Item #1: N62/N20 take NITF header data population and CORBA standards issue to JIIB; affected programs POM for change to std once decided.
  - Suspense: 30 Jun 98

Top Issues / Action Items CRWG 98

- CVIC/JIC Configuration Requirements
  - Background: Standing rqmt to id standard no. of w/s, LAN drops, intel apps, etc for GENSER and SCI workspace; all platforms.
  - Action Item #1: FLT N2s will evaluate CVIC/SUPPLOT/SSES/3905 Laptop h/w, s/w apps, and determine optimum std configuration; provide results to approp standing IPTs/OPNAV sponsors
  - Suspense: 30 Sep 98

GCCS-M PC Intel Tools Demo

GCCS-M PC Intel Tools

- **Implementation Plan**
  - **AF requirement**
  - **Beta delivery Nov 99**
    - **CENTCOM and others**
  - **SPAWAR-led OAG Nov 99**
  - **F/On delivery Spring 00**
  - **Full (productionized) delivery in GCCS-M 4.X following OT late CY 01**
- **Request fleet feedback**
  - **Meeting requirements**
  - **Implementation timeline**

Agenda

- Session 2
  - **Review issues from past CRWG/Intel WGs**
  - **GCCS-M PC Intel Tools Demo and implementation discussion**
  - **Specific Fleet Intel requirements / concerns**
  - **Remote replication afloat and its implications**
  - **Enterprise-wide storage / SAN (Storage Area Network)**
  - **Intelligence support to AADC Module**
  - **Maritime IBS and JTT (Joint Tactical Terminal)**
  - **JSIPS-N / JCA, GCCS-M imagery services**
  - **JTT (Joint Targeting Toolkit) and collaboration**
  - **Horizontal integration (i.e., conversion from HP to Sun)**
  - **JDISS and GCCS-M integration issues**
  - **GCCS-I³ and the joint intelligence community**

What are your Issues / Concerns??

GCCS-M and OSO Cooperative Initiatives

SPAWAR

10 Nov 99

Cdr Frank Murphy/CNO N62D

Navy C2I Systems Requirements

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PURPOSE

- Facilitate a cooperative process between OSO and GCCS-M management
- Identify near and long-term focus areas of mutual interest
- Potential targets
  - SCI fusion training initiatives
  - GALE Lite cooperation
  - Radiant Mercury way ahead

GCCS-M SCI Fusion Training Initiative

- **Background:**
  - **GCCS-M SCI fusion training deficiency**
  - **Schoolhouses not preparing ISs and JOs**
  - **Requires integrated training approach**
- **Goals:**
  - **Establish 3 MTTs -- professional trainers become SMEs**
  - **Fusion (ELINT / COMINT) focus**
  - **Supplement schoolhouse ITT and SPAWAR MTT**
- **Issue: Incorporate GALE Lite training piece**

UCCS-M SCI Fusion Training

- FY99 Milestones
  - Procure the training equipment
  - Build fusion curriculum
  - Develop knowledgeable OSO trainers (MTTs)
  - N62 contribution
- FY00 Milestones
  - Deliver pilot course
  - Incorporate GALE Lite integration segment training
  - Deploy initial fusion MTT
  - N62 contribution

GCCS-M SCI Fusion Training

- FY 01 Milestones:
  - Deploy fusion MTTs
  - Continue to maintain MTT currency and proficiency
  - N62 contribution

Remote Replication & Enterprise-Wide Storage Afloat

- **Received Fleet Imagery and GIS MNS**
  - **Responded to N81 on sponsorship (Joint N6/N8)**
  - **Cuts across several domains of interest**
    - **IT-21 Comms and LANs (N6)**
    - **C2I applications (N62)**
    - **High Volume, large-format printers (N81)**
- **Resolution: Make it a POM 02 Issue**
- **Discussion:**

Management Status To Date

- **IPRG & IPDM**
  - **Funding for GCCS Intel support in FY01**
    - **GCCS-I³ ready to field *approx* 2nd-3rd QTR FY00**
      - ***No additional funding* for FY00**
      - **Fielded at CENTCOM already**
      - **Navy GCCS prepared to field I³ servers at ACOM & PACOM sites**
      - **Requires fielding plan and CONOPS**
  - **Solution sets for Intel support to COP taken from GRiD**

Horizontal Integration

- **What does it mean to GCCS-M Intel?**

Garlic Fries Background

- Two primary data management components of COE based systems
  - High performance near real time (NRT) tactical data management system (TMS) for COP
  - Relational data stores which can archive high volumes of detailed data on less volatile entities in the battlespace
    - Intelligence, Logistics, Readiness
- Very limited data exchange and synchronization capabilities between primary data management components
- Present architecture guarantees that users will see redundant, ambiguous, and/or conflicting information

What is Garlic Fries ?

- Architecture to tighten federation of primary data management components
- Establish lasting relationships between track and relational data over the WAN
- Set of COE services and APIs that:
  - Archive perishable NRT data to RDBMS
  - Update NRT picture with data from RDBMS
    - Track Data
    - Association Support Tables
  - Maintain cross references between entities in TMS and RDI
- Provide a single symbol to represent established relationships

Intel Support to AADC

- **N86 Memo to DNI**
- **Near-Term Issue: USS Shiloh**
  - **1st AADC deployer w/Lincoln BG FY 00**
  - **Personnel and database fill / analysis requirements**
  - **Interface with JOTS 19 / ISDS=ok**
  - **Timely OOB and Inventory updates=ok**
    - **Daily TFs from DIA's collateral I3 server**
    - **Approx 20-30 min/day (RM or IS)**
  - **How to satisfy OPINTEL analysis rqmts**
    - **No. of personnel required**
    - **Shipboard / shore-based mix**
- **Long-Term Issues:**

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SPAWAR

DII COE Based Systems' Preparation for IBS

21 September 1999
Integrated Broadcast Service Users' Confere
SPAWAR Systems Center, San Diego

CDR Frank Murphy
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703-601-1292

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ues for DII COE Based Systems

- **(U) IBS Broadcasts**
  - **TIBS, TDDS, NRTD, TRIXS**
- **(U) IBS Value Added**
  - **IME correlated data**
- **(U) JTT Integration**
  - **Legacy vs. Migration formats**
- **(U) JCC Integration**
  - **DII COE compliant**
  - **Server integration**
  - **Client development**

DII COE IBS Parsing Issues

- **(U) Data format processing**
  - **OTH-G (Over-the-Horizon Targeting GOLD)**
  - **TADIL (Tactical Digital Information Link)**
  - **Tabular 37**
  - **TACELINT (Tactical ELINT)**
  - **NRTD (Near-Real-Time Dissemination)**
  - **TDIMF (Tactical Data Intercomputer Message Format)**

- **(U) Serial port dependence for most inputs**
  - **Multiple serial ports may be needed for the same source**
    (e.g. TDDS ELINT and TDDS TBM data)
  - **Ethernet interface desired between the**

II COE IBS Parsing Issues (cont)

- **(U) Modifications are required to take full advantage of the range of data that will become available**
  - **Expanded processing of SENSOREP**
  - **Expanded processing of TIBS, TDDS, and NRTD data**
    - **SEI and RIT are candidates**
  - **Processing of Variable Length Text Format (VLTF)**
  - **Processing of the IBS format (when specified)**

DII COE IBS Correlation

- **(U) Attribute Correlation**
  - **Must be expanded to handle today's wider variety of data sources**
    - > **Variable precision**
    - > **Non-ELINT data**
    - > **Pre-correlated data**
    - > **De-duping or Chaining**

- **(U) ELINT Correlation**
  - **Designed to process a subset of TAB37 format**
  - **An expanded ELNOT parameter database is required**
  - **Require processing of more complex parametric data**
    - > **Current scoring process based on PRI, SCAN, RF**

DII COE IBS Focus Areas

- **(U) Data Storage**
  - **Raw vs. Processed**
- **(U) Throughput Capacity**
  - **Flow control issues**
- **(U) Data Management**
  - **Common Operational Picture (COP) must fuse organic and non- organic data**
  - **Adaptation to new data types should be possible without a new DII COE software version**
- **(U) Track Management**
  - **Purging, Archiving, Merging, and Association**
- **(U) Display Management**

JTT Control Client (JCC)

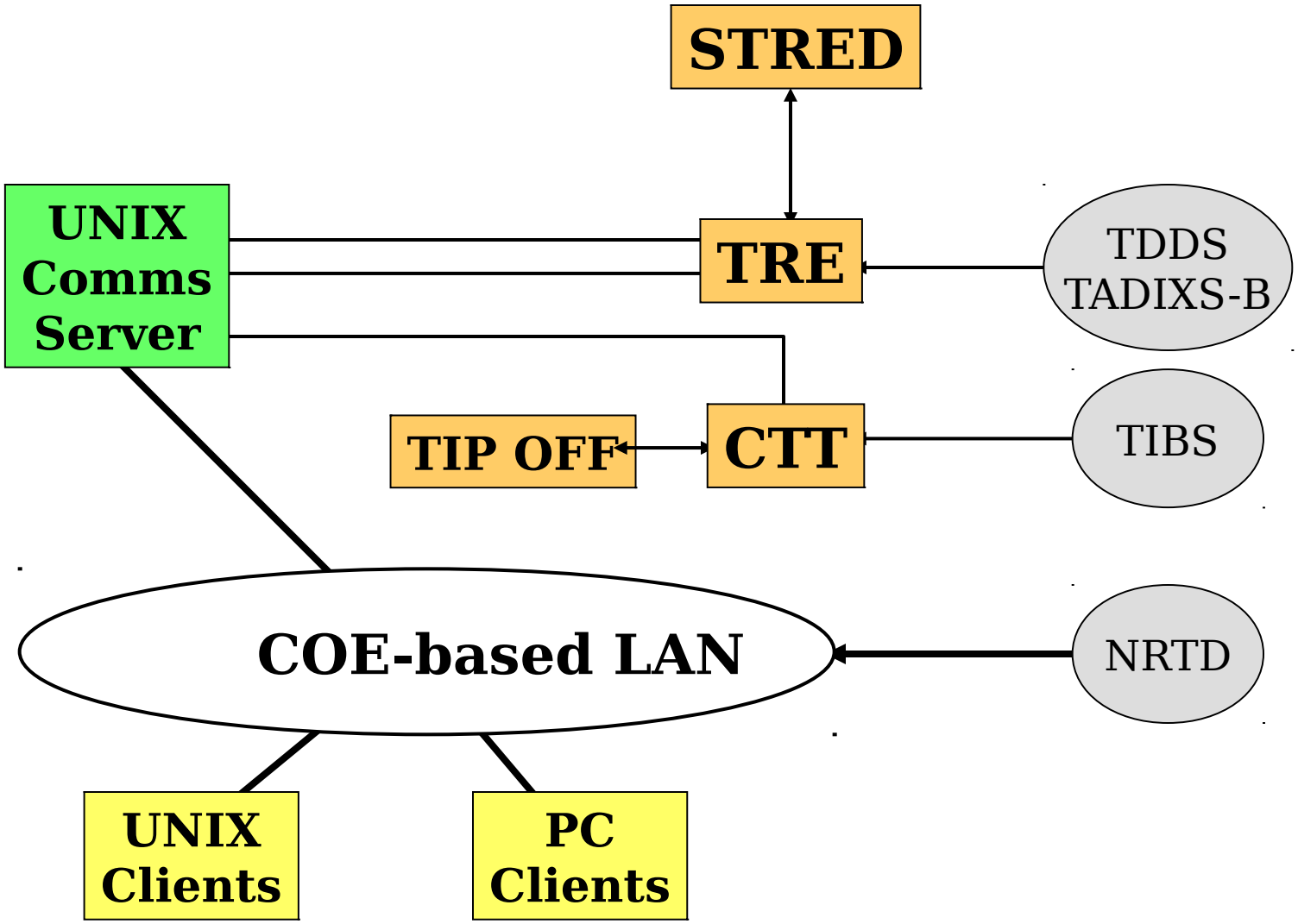
- **(U) Replaces TDPs' control segments (e.g. STRED, TIPOFF)**

- **(U) Platform independent application (JAVA based) to control the Joint Tactical Terminal (JTT)**

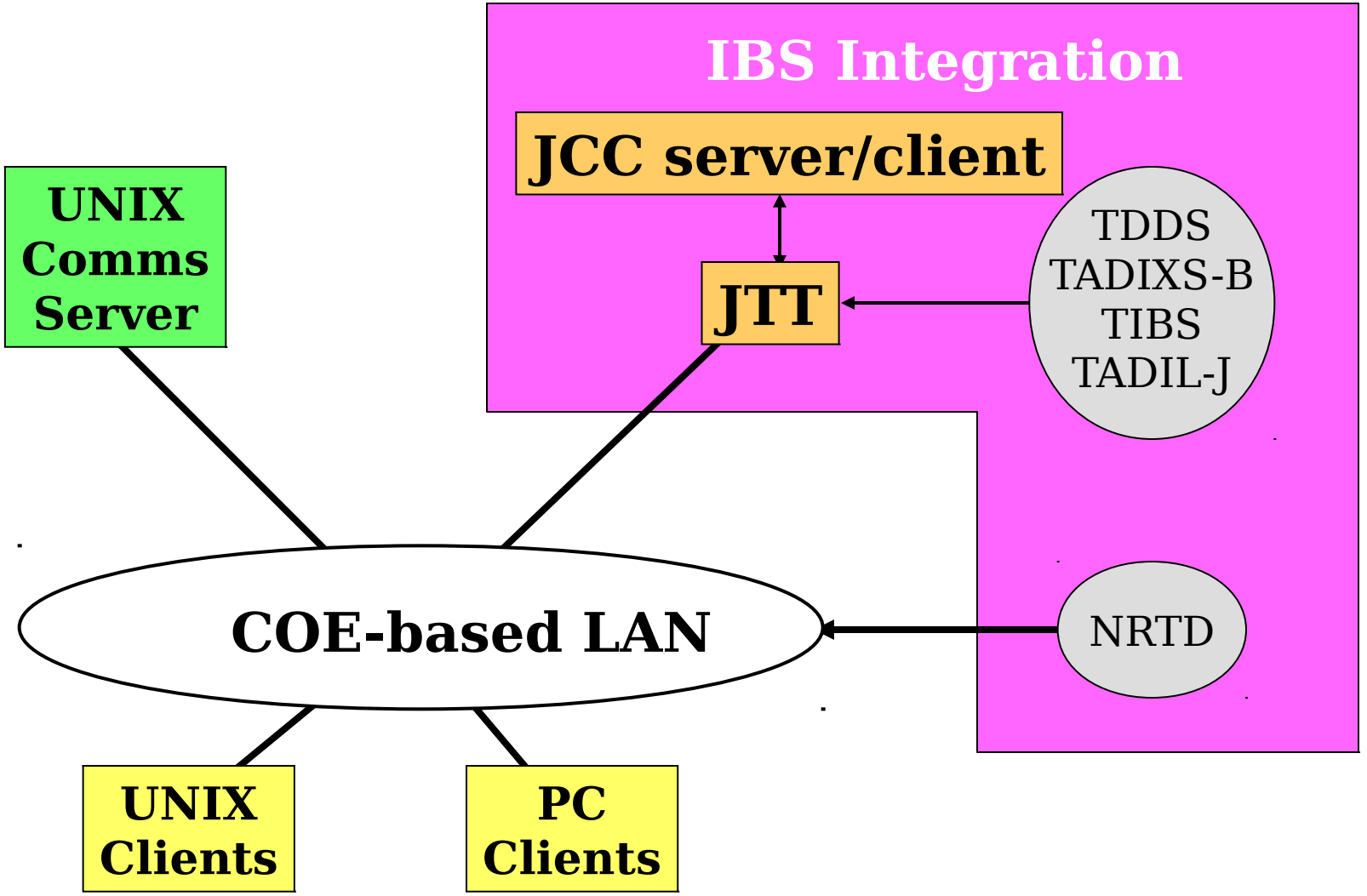
- **(U) "Form based" GUIs for:**
  - **System configuration and initialization**
  - **Software download and upgrade**
  - **Receive and transmit configurations**
  - **Port settings**
  - **Filtering**

- **(U) Various JCC TDP issues remain to be**

t Tactical Receiver Architecture



e IBS Integration Architecture



Integration Goals

- **(U) Integrate JCC into COE based systems**
  - **Use the JCC Server for interfacing to JTT**
  - **Review alternatives for the JCC Client**
- **(U) Upgrade the COE Communications Processor**
  - **Migrate to TDIMF Rev. E**
    - **> Allows use of a single format for TDDS, TADIXS-B, and TIBS data**
  - **Develop a VLTF parser**
  - **Exploit Ethernet interfaces from tactical receivers when available**

egration Goals (continued)

- **(U) Evaluate new data storage designs**

- **(U) Upgrade the DII COE correlation engine to meet IBS data requirements**
  - **Non-ELINT data**
  - **Pre-correlated data**
  - **Fusion of Organic and Non-Organic data**

- **(U) Update COP functionality**
  - **Improve I&W, targeting support, combat systems, and mission applications interaction**

Near- to Mid-Term Goals

- **(U) JTT & JCC integration by JTT IOC**

- **(U) DII COE engine used for overall system**
  I&W and Situation Awareness

- **(U) GALE Lite mission applications for**
  term analysis and Wrangler access

  - **Prototype DII COE 3.1 capability early in FY00**

JSIPS-N/PTW/GCCS-M
Imagery Services Afloat

- CDR Jim Hoey

Intel WG Top Issues and Action Items

JDISS and GCCS-M Integration

- Please fill in

GCCS-I³ and Joint Intel

Management Status To Date

- **OSD C³I decision pending on GCCS-I³ or GCCS-I EA**
- **Leaning toward Navy as GCCS-I³ EA**
  - **Responsive to GCCS requirements process (IFWG)**
  - **CNO N2 and N6 coordination**
    - **Satisfaction of IPRG decificiencies for Intel Support to COP**
    - **Future development planning and programming**

Horizontal Integration 4.x and Beyond

Dr. Frank A. Perry
Technical Director
SPAWARSYSCOM

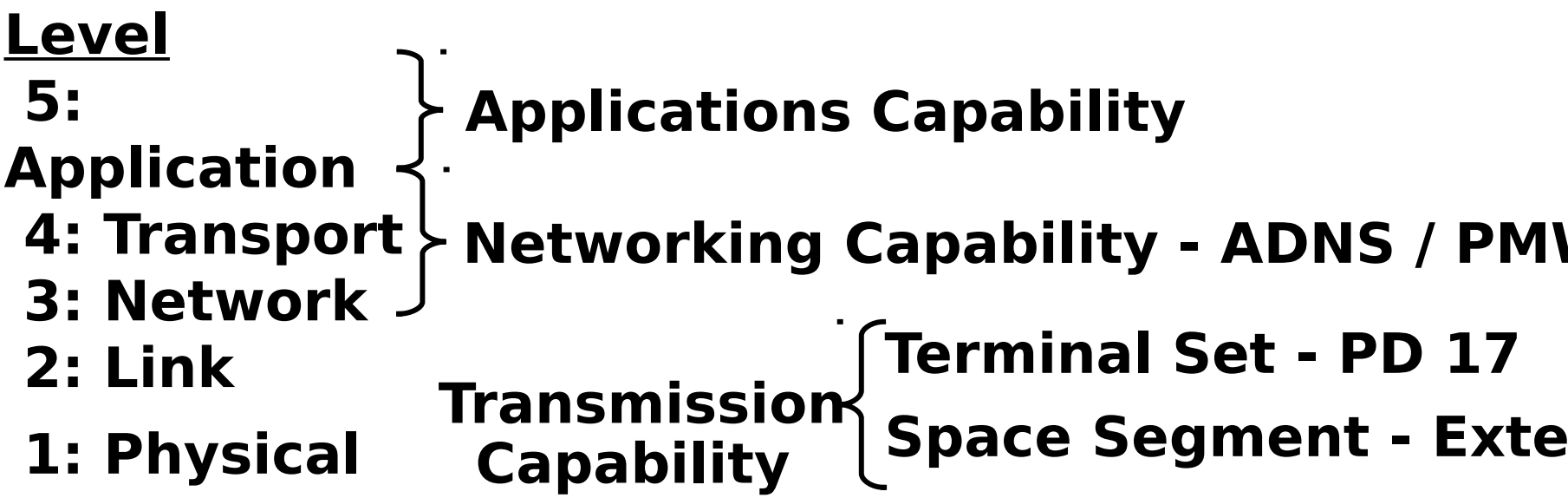
23 August, 1999

Overview

- The SPAWAR Horizontal Integration Effort Focuses on Single Development and Test Program that will Coordinate All SPAWAR Products

- HI Build 4.X will Target the Stennis Battlegroup (TCD 07/01)
  - Followed by Kennedy (TCD 10/01) , Nimitz (TCD 11/01) Lincoln (TCD 12/01) and George Washington (1/02)
  - And So On Down The Production Waterfall . . . .
  - Until We Repeat The Process In 5.x in 2003 . . . .

3 Key HI Areas

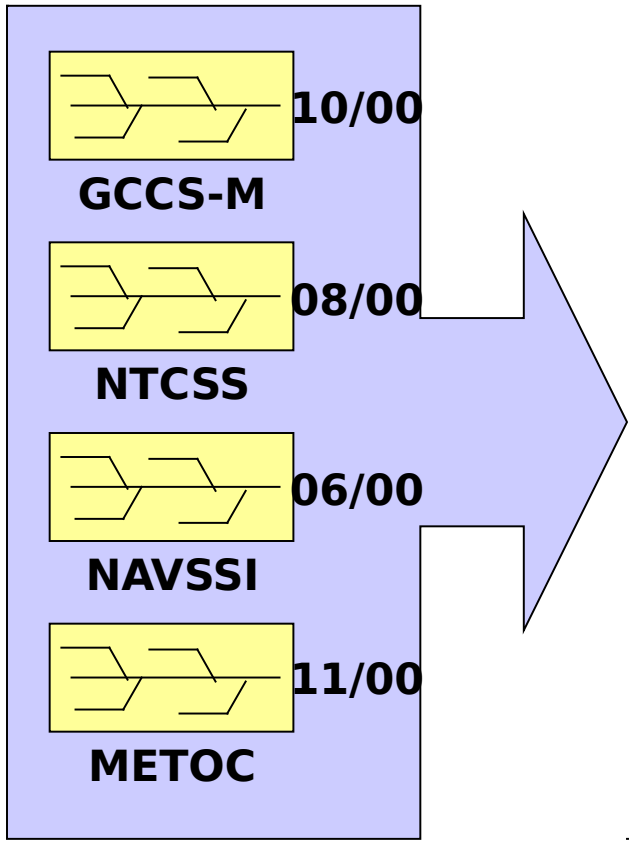


Why Horizontal Integration?

HI IS THE Next Step in SPAWAR Product Line Consolidation Effort

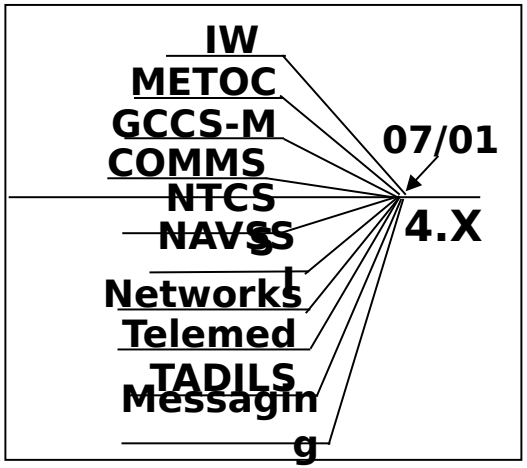
Today

Multiple Developments and Deliveries

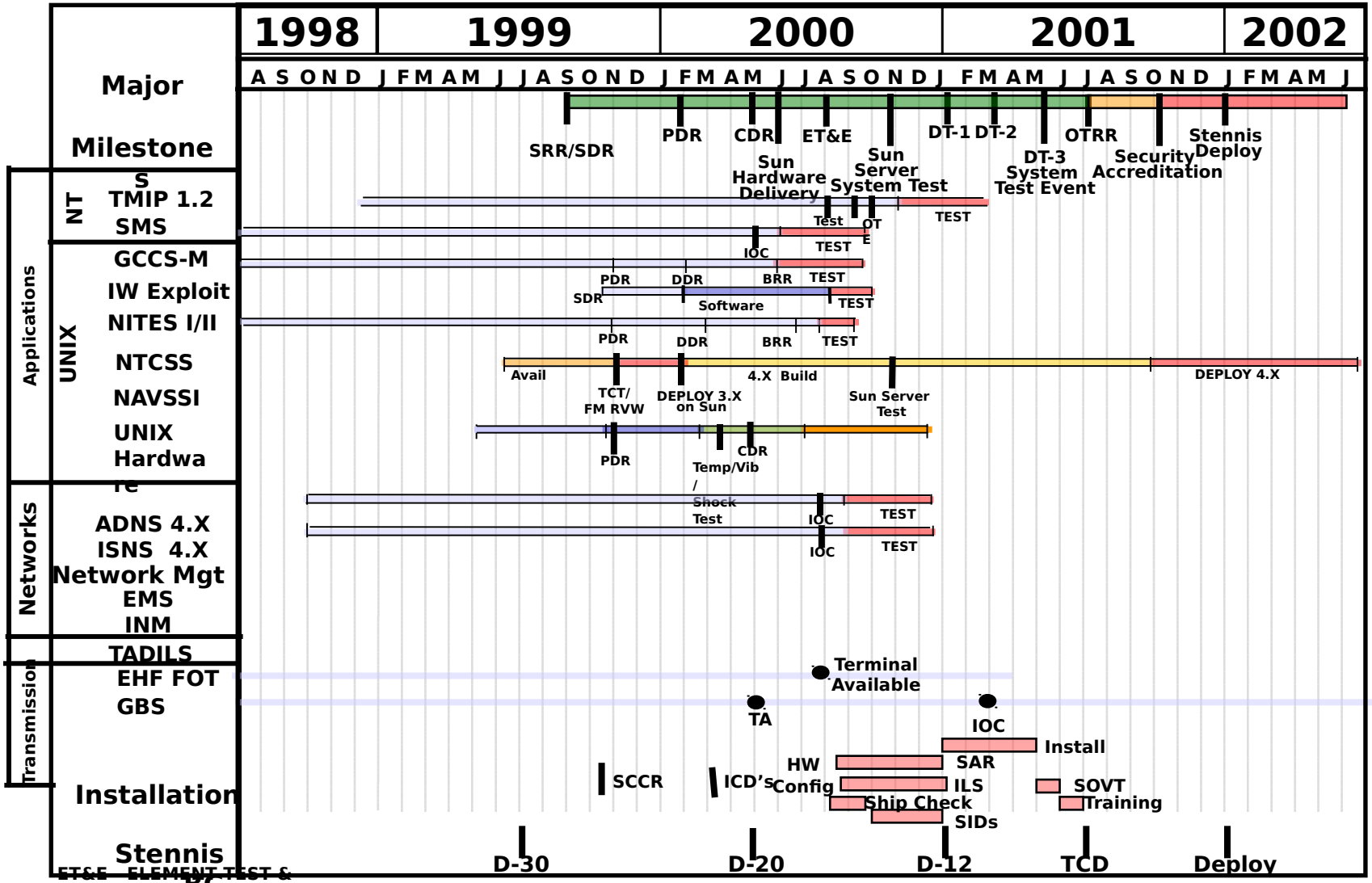


Horizontal Integration

Single Development and Delivery

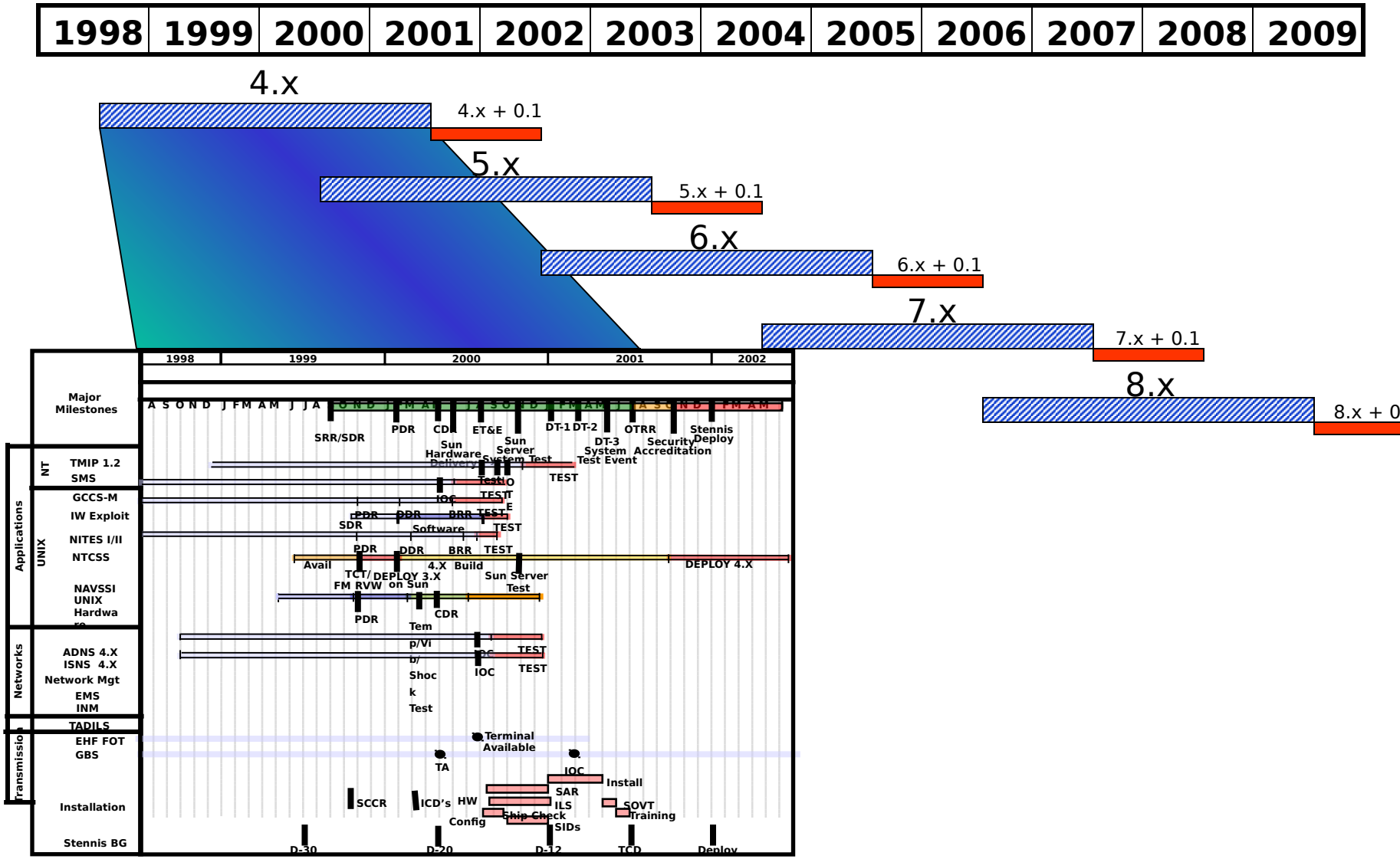


HI Build 4.X Schedule



ET&E - ELEMENT TEST & EVALUATION
ST&E - SYSTEMS TEST &

HI Build Y.x Schedule



GCCS-M 4.x Goals

- DII COE 4.1
- Develop the 3-tier architecture for SPAWAR-wide integration
  - injection of relevant operational data into the COP
  - Common Track Data Store and Garlic Fries
- Migrate workstation applications from Unix to NT
  - utilize new technologies to provide cross-platform support (e.g., JNI)
- I&RTS Level 7 Compliance
- XML Help/User Documentation
  - Standardize the way developers provide user/admin documentation using COTS products and integrate with overall training effort (ENOSIS)
  - Integrate with CBT architecture
- GCCS / GCCS-M Interoperability
  - Security and account groups
- Enhance the DII COE Environment on NT
  - COTS Installer (InstallShield/OSD)
- FleetCast
- Enterprise System Management (CA/Tivoli/SMS)
- CRWG Enhancements/ORD Waivers

GCCS-M Intel / I³ 4.x Targets

- Migrate ALL I3 client functionality to PCs
- Implement a subscription methodology for thin clients
- Scalable MIDB (Admin, Size, AOR)
  - provide for functionality to support a scaled MIDB load (and IDBTF) based upon AOR
  - Migrate some SDS functions to scaled PC servers (SQL Anywhere)
  - Simplify administrative tasks on Data Maintenance
- I³ Data Access Layer
  - provide middle tier that enables apps to use IDLs to retrieve data
    - insulate apps from changes to backend data structures
    - perform simple data validation, etc.
- SDS Replication/Synchronization
  - design CONOPS and integrate tools to support data replication
  - harmonization with Garlic Fries WAN implementation

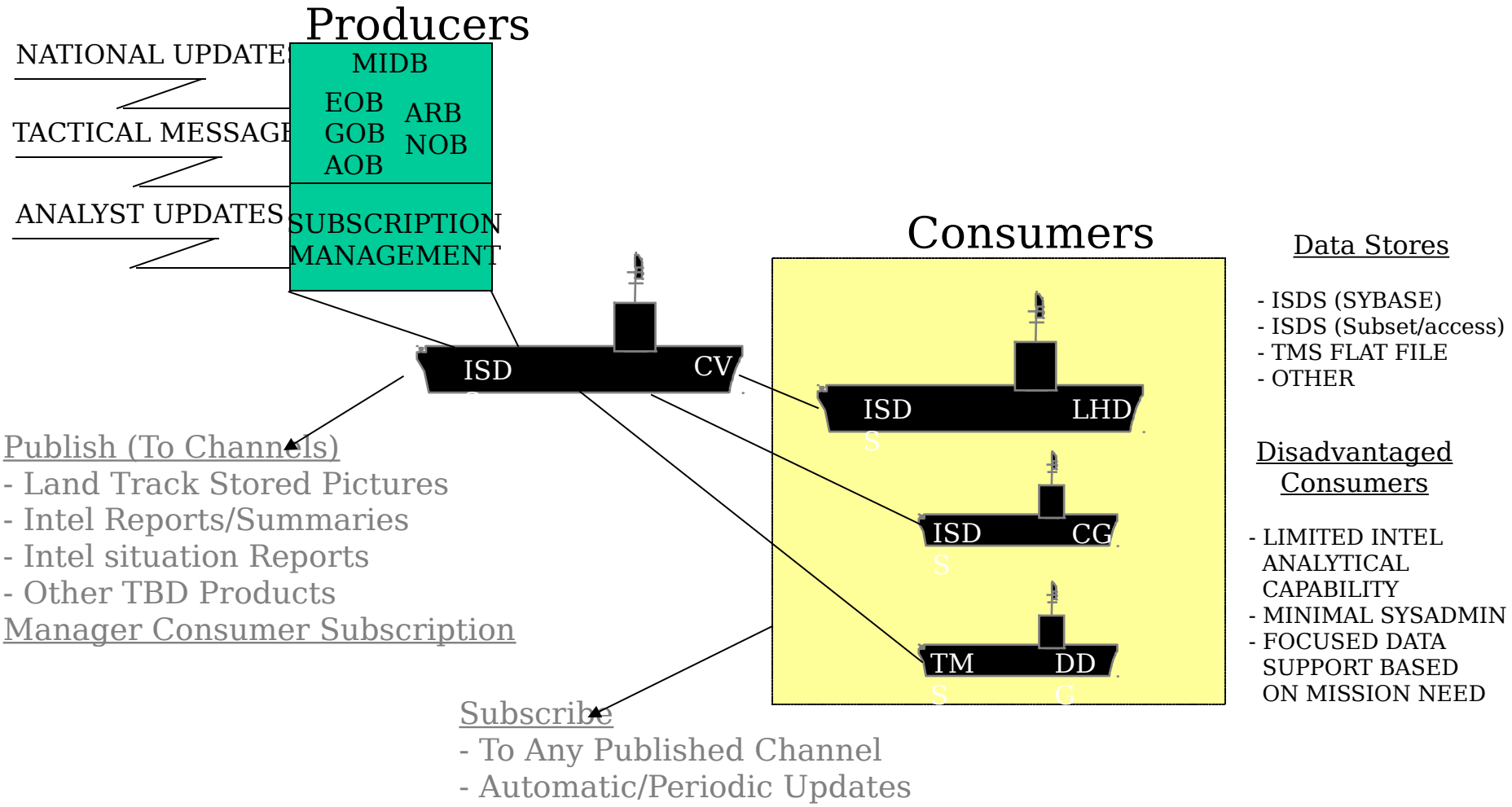
GCCS-M Intel / I³ 4.x Targets

- ITS
  - Interface to IPL/5D/Remote ITS
  - Access to Multiple Data Formats
  - Client Platform Independence (Unix/NT)
- JIVE
  - Platform Independent
  - Image Viewer
  - Annotation
  - Image Registration
  - MIDB Linking/Data Synchronization
  - Video Capabilities
- Image Manager
  - Platform Independent
  - Color Imagery
  - Speed Improvements (Tiled RRDS)

IntelCast Goal

- Extend Publication of Finished Intelligence Products
- Service Disadvantaged Users
  - Users w/o Intelligence Databases/Analysts
- Service to multiple client application types
  - Combat Systems, Intel Databases, Spreadsheets, etc.
- Subscription-based Request Management
- IP-Based/COTS-based
- Operate in an intermittent network environment
- Allow the transfer of all types and formats of data
- Minimize network bandwidth requirements
- Operate on all GCCS hardware: Sun, HP, PC and Network computer(?)

IntelCast Notional Architecture



Common Operational Picture

- History
  - 1986 - Battle Group Data Base Management
    - All data is sent to central location
    - Force Over the Horizon Tracking Coordinator
    - Communications path is OTCIXS (2.4 kbps)
    - Tomahawk and FDDS are primary participants
  - 1990 - BGDBM Specification is developed
  - 1999 - Transition from BGDBM to IP-based COP Synch Tools

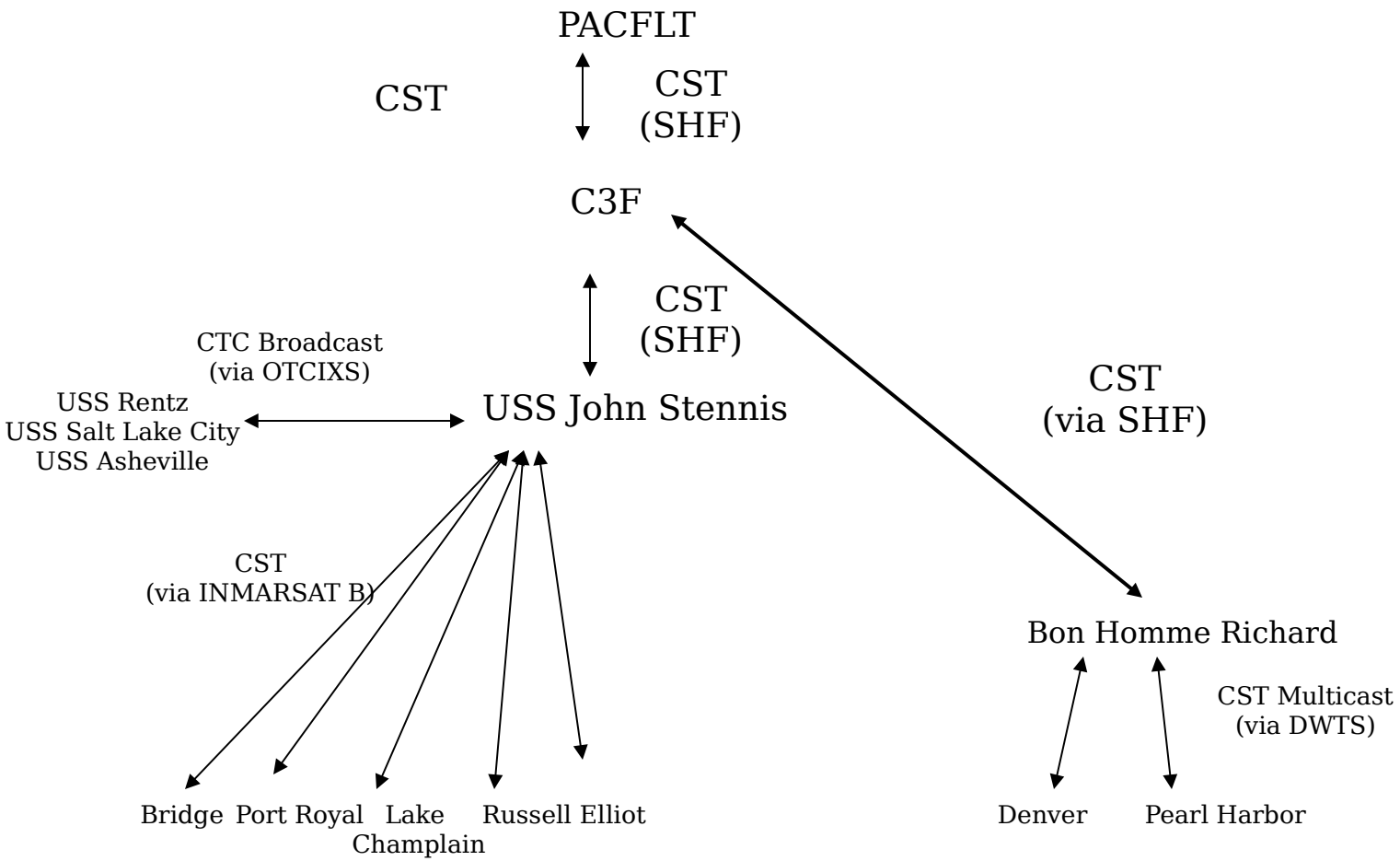
COP Sync Tools (CST)

- Where we are now:
  - Improvements in throughput
  - Improvements in CST setup
  - Filtering based on standard UB search criteria
  - Added PIM tracks, ATOs and Overlays
  - Node Permissions
  - Node pre-configuration database
  - Time Synchronization
  - Multicast

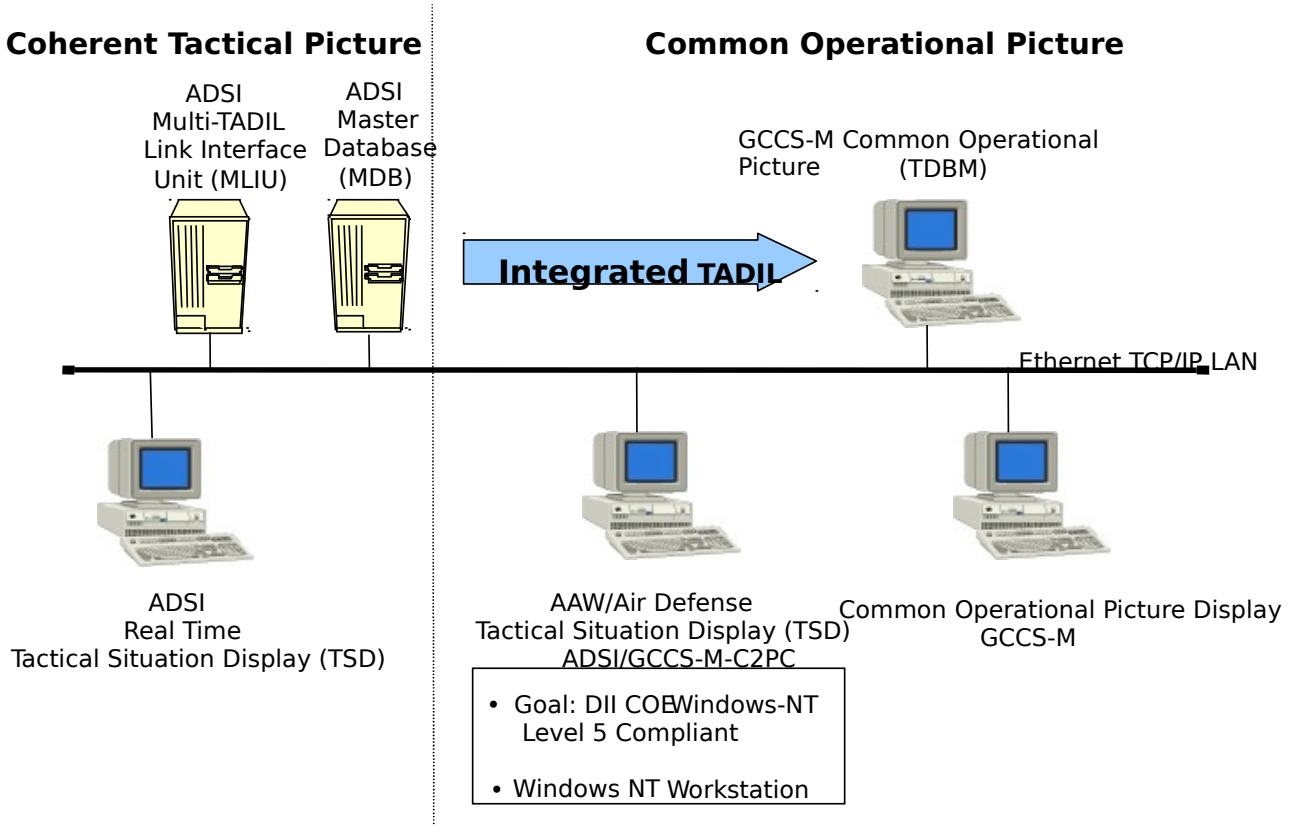
Common Operational Picture

Initial Deployment of CST

Notional Approach



MTC Architecture



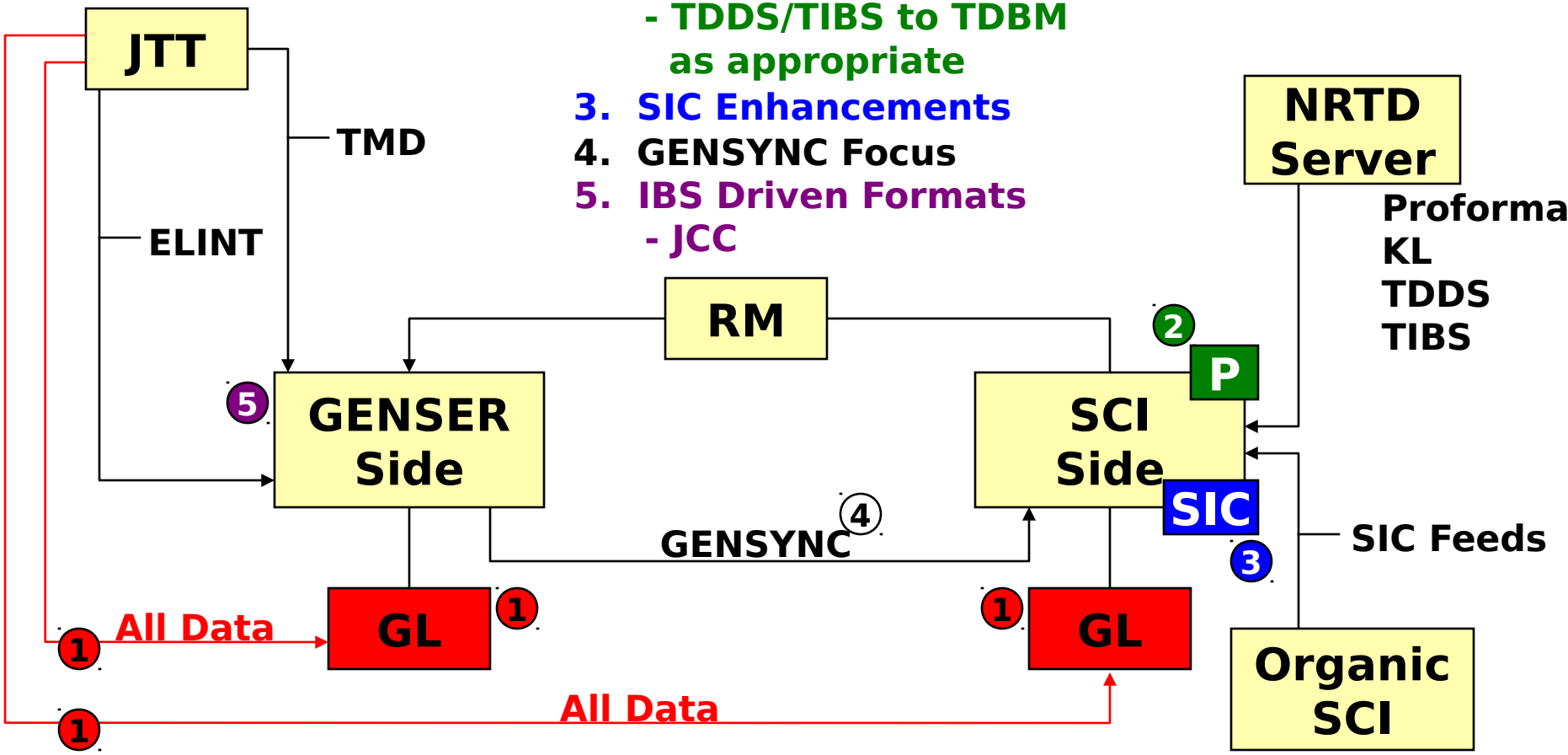
Navy JSTARS Interface

- Hypothesis: Given a Modest Investment in R&D, Provide integrated access to MTI/FTI, and SAR data
- NJI is a Software Solution
  - Client Server Approach
    - Client to run on GCCS-M: DII COE Level 6 compliance
    - Server to run on PTW+ at Level 5
  - Export Track Data to DII COE Track Management Services (TMS)
    - MTI Track will exist on COP like any other track.
    - Uses Existing Comms (SATCOM)
  - Incorporate USMC Client Requirements
- Using EXISTING I3 applications for SAR data
- Future
  - Leverage PTW+ / JSIPS-N Targeting Expertise
  - Leverage USA P3I and Advanced Imagery CGS Work
  - Additional Sensor Interfaces
  - Incorporate Complete USMC Client Requirements

4.x Correlation Architecture

Focus Areas

1. Gale Lite Intro
2. Proforma Fix
   - Proforma Track
   - KL's to SIC
   - TDDS/TIBS to TDBM as appropriate
3. SIC Enhancements
4. GENSYNC Focus
5. IBS Driven Formats
   - JCC



Joint Targeting Toolkit Status Update

- Either Steve Geiger or Bob Poor??